

REMARKS

Claims 20-26 presented herein correspond very nearly to the claims designated by the Examiner as belonging to Group II in the parent application. The wording of these claims has been revised to accommodate the concerns of the Examiner related to 35 USC 112 and US Patent 5,492,720 to Gill et al. ("Gill").

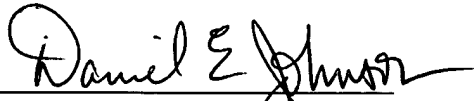
Gill, as clearly explained in the summary and the detailed description of that patent, teaches the use of two different antiferromagnetic materials (having different blocking temperatures) that provide both the longitudinal bias and the transverse bias for a magnetic recording head sensor layer. Two different antiferromagnetic materials are used and are generally disposed at either end of the sense layer and in the middle portion of the sense layer. In Gill, the exchange bias field provided by the two different antiferromagnetic materials is parallel to the interface between the antiferromagnetic and the ferromagnetic sense layer. Gill describes the case in which the exchange bias fields are set in orthogonal directions *in the plane of the interface* between the antiferromagnetic and ferromagnetic sense layers. In the present application, the antiferromagnetic layer provides an exchange bias field generally *perpendicular to the interface* between the antiferromagnetic and ferromagnetic layers. Note that Gill (see column 6, lines 57 through column 7, line 8) uses the word "perpendicular" to describe the *transverse* orientation of the exchange bias field of the second antiferromagnetic layer *within the interface* between the ferromagnetic and antiferromagnetic layers.

With regard particularly to magnetic recording read heads, Gill describes antiferromagnetic material generally placed on the top (or bottom) surfaces of the ferromagnetic sense layer, whereas the present application describes the very different configuration in which the antiferromagnetic material is deposited and is active on the edges of the ferromagnetic layer. In preferred embodiments of the present application, the antiferromagnetic material occupies no more room in the dimension perpendicular to the plane of the ferromagnetic layer than the thickness of the ferromagnetic layer itself, whereas in Gill the antiferromagnetic layer must occupy additional space in the perpendicular direction, because the antiferromagnetic material in Gill is only providing exchange bias in a direction within the plane defined by the interface between the ferromagnetic and antiferromagnetic layers. In the present application, the exchange bias field is provided in a direction generally perpendicular to the interface between the ferromagnetic and antiferromagnetic regions.

The Examiner is invited to call applicants' undersigned attorney if a telephone conference will expedite the prosecution of this application.

Respectfully submitted,

E. E. Fullerton



Daniel E. Johnson (Reg. No. 37,033)
Agent for Applicants
Phone (408) 927-3367

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